Human capital composition and economic growth in a changing world: The case of Africa

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Background

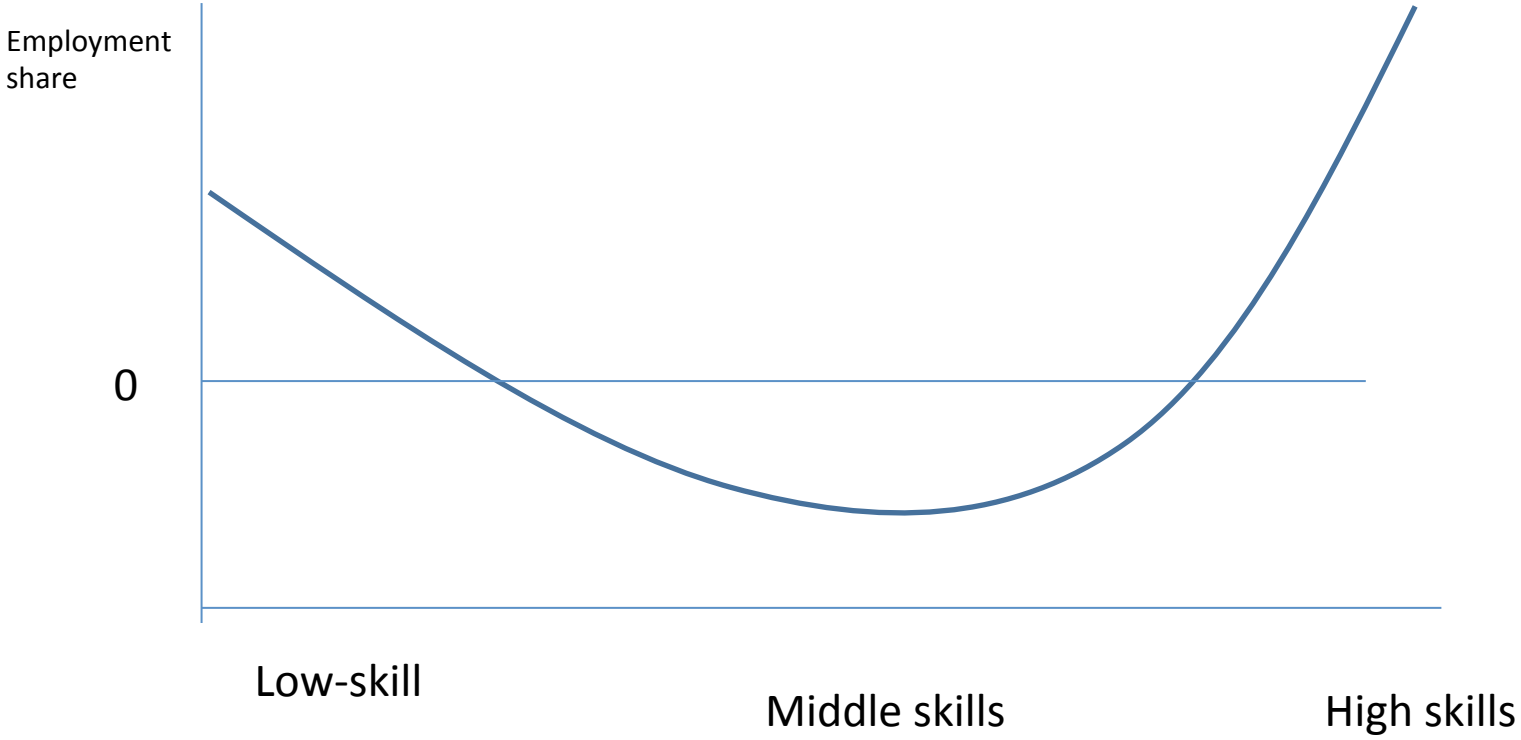
- Globalisation has largely affected sectoral composition of growth, resource flow and human capital development across the globe

- Labour-augmenting technological innovations benefited skilled workers and drove skilled human capital accumulation over the 1980s and 90s.

- Thereafter, most advanced economies leaned toward the production of non-tradable low-skill tasks (using lower level human capital) to the detriment of tradables tasks – middle skill tasks (which are supplied in "excess" by other countries- rest of the world)(Acemoglu and Autor, 2011; Mandelman 2016).

Polarisation of skills

- Importance of skills (human capital) in globalised world- advanced economies



Motivation

- Trade is central to economic restructure in LICs but how is globalisation shaping human capital development in LICs.

- Earnings or task based data is limited but what type/level of human capital are needed to support the changing composition of growth in low income regions such as African?

Current study and addition to knowledge

- We evaluate the importance of different measures of human capital to economic growth for SSA countries.
- Single country and large inter-regional cross country studies that evaluate specific human capital measure exist but studies examining effect of different measures of human capital on growth in SSA is limited.

Main findings

- All skill levels (human capital tasks) appear to drive growth Basic education support most growth, followed by secondary and tertiary education since 1990.

Estimation: Human capital and growth

- $Y_{jt} = \alpha + \beta hc_{it} + \pi Z_{it} + \varepsilon_j$
- where
  - Y_{it} is GDP per capita
  - *hc* is human capital measure
  - Z_{it} is a vector of control variables
  - the subscripts *i* and *t* represent observation for each country at a specified time.
  - α_i is the country-specific effect
  - β and π are parameters and ε_{it} is an error term

Human capital (Education measures) and Economic growth (control variables not shown)

	Mode 1	Model 2	Model 3	Model 4
Tertiary sch. enrolment	0.108***			
	(0.04)			
Human capital index		0.157**		
		(0.07)		
Primary sch. enrolment			0.429***	
			(0.08)	
Secondary sch. enrolment				0.298***
				(0.07)
Constant	0.870**	0.525**	-0.018	1.127***
	(0.35)	(0.25)	(0.17)	(0.36)
Observations	255.000	369.000	352.000	251.000
R^2	0.885	0.879	0.911	0.894

Note: N represents number of observations; figures in parentheses are *t*-values.
*** means significant at 1% level, ** significant at 5% level, * significant at 10% level.

Human capital and Economic growth

	Mode 1	Model 2	Model 3	Model 4
	Tertiary school	Human capital	Primary school	Secondary school
	0.108***	0.157**	0.429***	0.298***
	(0.04)	(0.07)	(0.08)	(0.07)
Capital per labour	0.680***	0.757***	0.782***	0.593***
	(0.07)	(0.07)	(0.05)	(0.09)
Government expenditure	0.175***	0.194***	0.070	0.112*
	(0.05)	(0.05)	(0.05)	(0.06)
Trade openness	0.017	-0.091	-0.132**	-0.095
	(0.05)	(0.06)	(0.06)	(0.06)
Household consumption	-0.003*	-0.003	-0.002	-0.001
	(0.00)	(0.00)	(0.00)	(0.00)
Urbanization	0.008	-0.005	-0.002	-0.004
	(0.01)	(0.00)	(0.00)	(0.01)
Aid	-0.053*	-0.035	-0.023	-0.006
	(0.03)	(0.02)	(0.02)	(0.02)
Polity	0.004	0.004	0.006**	0.006**
	(0.00)	(0.00)	(0.00)	(0.00)
Governance	-0.089***	-0.084***	-0.057**	-0.024
	(0.03)	(0.02)	(0.02)	(0.03)
Constant	0.870**	0.525**	-0.018	1.127***
	(0.35)	(0.25)	(0.17)	(0.36)
Observations	255.000	369.000	352.000	251.000
R^2	0.885	0.879	0.911	0.894

Education quality measures and Economic growth

	Model 1	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Gender parity index (primary)	Pupil-teacher ratio (tertiary)	Progression to secondary school	Literacy rate(15-24)	Literacy rate (adult)	Pupil-teacher ratio (secondary)	Gender parity index (secondary)
	0.436***	0.046**	0.081**	0.135***	0.171*	-0.004	0.155
	(0.11)	(0.02)	(0.04)	(0.04)	(0.09)	(0.06)	(0.10)
Capital per labour	0.770***	0.757***	0.810***	0.837***	0.905***	0.888***	0.825***
	(0.05)	(0.07)	(0.05)	(0.08)	(0.05)	(0.08)	(0.08)
Government expenditure	0.122***	0.283***	0.106*	0.068	0.133*	0.135*	0.130**
	(0.04)	(0.07)	(0.06)	(0.11)	(0.07)	(0.07)	(0.06)
Trade openness	-0.105**	0.015	-0.085	-0.127	-0.144*	-0.171*	-0.141**
	(0.05)	(0.06)	(0.06)	(0.15)	(0.08)	(0.09)	(0.06)
Household consumption	-0.002	-0.005	-0.002	0.008	0.007	-0.004	-0.002
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)
Urbanization	0.000	0.004	-0.011	-0.005	-0.001	-0.006	0.004
	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Aid	-0.010	-0.035	-0.014	-0.017	0.080**	-0.026	-0.036
	(0.01)	(0.04)	(0.02)	(0.03)	(0.04)	(0.02)	(0.02)
Polity	0.003	-0.001	0.005*	0.000	-0.002	0.012***	0.009**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Governance	-0.097***	-0.128***	-0.050	-0.126***	-0.109***	-0.051**	-0.067**
	(0.02)	(0.03)	(0.05)	(0.03)	(0.03)	(0.02)	(0.03)
Constant	0.405*	0.366	0.224	0.067	-0.144	0.319	0.433
	(0.21)	(0.32)	(0.18)	(0.29)	(0.26)	(0.60)	(0.41)
Observations	349.000	163.000	211.000	78.000	75.000	191.000	246.000
R^2	0.904	0.892	0.876	0.944	0.972	0.832	0.854

Interactions: Education level and Governance on growth

	Model 1	Model 2	Model 3	Model 4
Gov* Tertiary Sch	0.091			
	(0.10)			
Human capital index		0.065		
		(0.08)		
Gov*Human capital		0.179*		
		(0.09)		
Primary school			0.433***	
			(0.10)	
Gov*primary school			-0.005	
			(0.10)	
Secondary school				0.113*
				(0.07)
Gov*secondary school				0.245**
				(0.11)
Constant	0.957***	0.703***	-0.025	1.200**
	(0.34)	(0.24)	(0.22)	(0.39)
Observations	255.000	369.000	352.000	251.000
R^2	0.887	0.884	0.911	0.905

Interactions- Education Human Capital Measures and Governance

	Model 1	Model 2	Model 3	Model 4
	Governance*Tertiary	Governance*HCI	Governance*primary	Governance*secondary
	0.091	0.179*	-0.005	0.245**
	(0.10)	(0.09)	(0.10)	(0.11)
Capital per labour	0.670***	0.746***	0.782***	0.627***
	(0.07)	(0.07)	(0.05)	(0.08)
Government expenditure	0.171***	0.186***	0.070	0.095
	(0.05)	(0.05)	(0.05)	(0.06)
Trade openness	0.017	-0.080	-0.132**	-0.084*
	(0.05)	(0.06)	(0.06)	(0.05)
Household consumption	-0.003	-0.002	-0.002	-0.001
	(0.00)	(0.00)	(0.00)	(0.00)
Urbanization	0.009	-0.002	-0.002	0.005
	(0.01)	(0.00)	(0.00)	(0.01)
Aid	-0.061	-0.039	-0.023	-0.009
	(0.04)	(0.03)	(0.02)	(0.02)
Polity	0.004	0.003	0.006**	0.006***
	(0.00)	(0.00)	(0.00)	(0.00)
Governance	-0.141**	-0.364**	-0.048	-0.371*
	(0.07)	(0.15)	(0.20)	(0.15)
Tertiary school	0.049			
	(0.07)			
Human capital		0.065		
		(0.08)		
Primary school			0.433***	
			(0.10)	
Secondary school				0.113*
				(0.07)
Constant	0.957***	0.703***	-0.025	1.200**
	(0.34)	(0.24)	(0.22)	(0.39)
Observations	255.000	369.000	352.000	251.000

Conclusion and Policy implication

- This study investigates whether the global change has affected the human capital development in Africa.
- Our results suggests that the composition of human capital from tertiary education level is weakly driving growth compared to those based on basic and secondary education.
- Results may be affected by stabilization policies where many LICs
    - reduced public support for tertiary education(high skilled Human capital) following austerity and economic restructure over the 1980s and 1990s (affordability issues may hinder private investment)
    - increased support for universal access to elementary/first cycle education (low skilled human capital)

Conclusion and Policy implication

- Polarisation of skills in advance countries may support private investment in higher skill tertiary education driven human capital.

- LICs also require higher skills to benefit from technology augments growth but private provision of tertiary education may limit share of high skills in the skill set

Thank you

Poverty and the Sectoral Composition of Growth by Income Level

	Low Income Countries	Low - Middle Income Countries	Upper-Middle Income Countries
C	6.681932***	-3.639360	3.014048
	(23.67584)	(-1.564537)	(0.906995)
LOG(AGVA)	-0.017383	-0.235830	-0.866191***
	(-0.166668)	(-0.790296)	(-2.936808)
LOG(SERVVA)	-0.895748***	-0.565888**	-0.463428
	(-10.73921)	(-2.2033312)	(-1.336040)
LOG(INVA)	0.152764***	-0.890794***	-1.207952***
	(9.146765)	(-3.596273)	(-2.891235)
LOG(GINI)	0.209961***	4.224994***	3.750073***
	(6.434293)	(7.272428)	(6.209945)
Adjusted R-Squared	0.971886	0.914259	0.91951
Observations	91	145	116
Cross Sections	28	33	21

- **Industrial GDP elasticity is positive and significant ➔ suggesting a 1% increase in industrial growth will actually increase headcount poverty by 0.15 %**